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THE GENUS *APORUSA* BL. (EUPHORBIACEAE) IN INDIA—NOMENCLATURE AND DISTRIBUTION

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ABSTRACT

Of the 12 species of *Aporusa* Bl. indigenous to the Indian region, 6 species are endemic to S. India, Sri Lanka and Nicobar Islands and *A. villosa* (Lindl.) Baill. is reported here as a new record for Manipur. *Griffith* s. n. (Kew distribution No. 4959—CAL !) from Malacca and *Wall. num. list no.* 8019 (CAL !), both annotated by J. D. Hooker in his own handwriting are selected here as the lectotypes of *Aporusa aurea* Hook. f. and *A. wallichii* Hook. f., respectively.

Our critical study of literature for determining the endemic taxa of the genus *Aporusa* Bl., corr. Bl. (1828) (=*Aporosa* Bl. 1825), together with the specimens deposited in CAL, has established the occurrence of 12 species in India, Bangladesh and Sri Lanka, of which 6 species are endemics.

Aporusa Bl., Fl. Jav. 1 : 6 (1828), corr. Bl. [= *Aporosa* Bl. Bijdr. : 514 (1825)] ; Croizat in Bull. Bot. Gard. Buitenzorg, 17 : 217-218 (1942) ; Airy Shaw in Kew Bull. 20 : 380 (1966) ; et *l. c.* 26 (2) : 215 (1972) ; et *l. c.* 36 (2) : 255 (1981). Type species : *Aporusa frutescens* Bl., *l. c.* (1828).

75 species Indomal to Solomon Islands ; 12 species indigenous to India, Bangladesh and Sri Lanka.

The Nomenclature and Distribution of the 12 Taxa with Indian Distribution are :

A. ENDEMIC TAXA

1. **Aporusa bourdillonii** Stapf in Hook., Ic. t. 2204 (1894) ; Gamble, Fl. Pres. Madr. Part. 7 : 1309 (1925). Type : "Travancore, moist forest in the low-country, *Bourdillon* 9".

Specimen examined in CAL : Kerala : Travancore, *Bourdillon* 544.

Distribution : India (Kerala).

2. **A. acuminata** Thw., Enum. Pl. Zeyl. : 288 (1861) ; Hook. f., Fl. Brit. Ind. 5 : 348 (1887) ; Gamble, *l. c.* : 1309. Type : Sri Lanka : Ambagamowa District, near Balangodde, 610-915 m, *Thwaites* C.P. 2530 (CAL !).

Specimens examined in CAL : Tamil Nadu : Coimbatore District, Udumanparai, 10 May 1903, *Barber* 5827 ; Kerala : Travancore, Kulkuntal, 1525 m, Dec. 1909, *Meebold* 13241.

Distribution : India (Tamil Nadu & Kerala) & Sri Lanka.

3. **A. fusiformis** Thw., *l. c.* : 288 ; Hook. f., *l. c.* : 351 ; Gamble, *l. c.* 1309. Type : Sri Lanka : Central Province, 1220-1830 m, *Thwaites* C. P. 30 (CAL !).

Specimen examined in CAL : Kerala : Quilon, *Bourdillon* s. n.

Distribution : India (Tamil Nadu & Kerala) & Sri Lanka.

4. **A. lindleyana** (Wight) Baill., Et. Gen. Euphorb. : 645 (1858) ; Hook. f., *l. c.* : 349 ; Gamble, *l. c.* : 1309; Manjunath *et al.* (Ed.), Wealth of India 1 : 88 (1948).

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Scepa lindleyana Wight, Ic. 2, t. 361 (1843). Type : Not indicated.

Specimens examined in CAL : Goa : Caranzol, 16 Apr. 1966, *Cherian* 107146 ; Maharashtra : Thana District, Tunjor Hill Slope, 22 July 1968, *Billore* 116303 ; Karnataka : S. Kanara District, Hosangadi-Siddapur, 70 m, 20 Apr. 1979, *Saldanha et al.* KFP 7082 ; Tamil Nadu : Coimbatore District, Udumanparai, 13 May 1903, *Barber* 5881 ; Kerala : Quilon District, Vallia Kunnu R. F. Ranni Range, 125 m, 22 Nov. 1976, *Chandrabose* 49179.

Uses : Used in construction of houses, especially for rafters. The fruit is said to be edible.

Distribution : INDIA (Goa, Maharashtra, Karnataka, Tamil Nadu, Kerala) & SRI LANKA.

5. **A. lanceolata** (Tul.) Thw., *l. c.* : 288 ; Hook. f., *l. c.* : 351. *non* Kurz (1877). *Lepidostachys lanceolata* Tul., in Ann. Sc. Nat. Ser. 3, 15 : 254 (1851). Type : Sri Lanka : Oritur, 1829, *Macrae* 614.

Specimen examined in CAL : Sri Lanka : *Thwaites* C. P. 2152.

Distribution : SRI LANKA.

6. **A. latifolia** Thw., *l. c.* : 288 ; Hook. f., *l. c.* : 347. *Agyneia latifolia* Moon, Cat. Ceyl. Pl. : 65 (1824), *nom. invalid, sans descript.* Type : Sri Lanka, *Thwaites* C. P. 3433 (CAL !).

Specimen examined in CAL : Type only.

Distribution : SRI LANKA.

B. SPECIES OF WIDER DISTRIBUTION

7. **A. dioica** (Roxb.) Muell.-Arg. in DC., Prodr. 15 (2) : 472 (1866) ; Manjunath *et al.* (ed.), Wealth of India 1 : 88 (1948) ; Airy Shaw in Kew Bull. 23 (1) : 3 (1969) (in obs.) ; et *l. c.* 26 (2) : 215 (1972) ; et *l. c.* 36 (2) : 255 (1981). *Alnus dioica* Roxb., Fl. Ind. 3 : 580 (1832). Type : Bangladesh, Silhet, KOKRA-*Beng.*; Iconotype : Roxb. Ic. t. 2378 [CAL ! ; K ; Sealy, Kew Bull. 11 (2) : 306 (1956)]. *Aporusa microcalyx* (Hassk.) Hassk., in Bull. Bot. Soc. France 6 : 714 (1859) ; Hook. f., *l. c.* : 346. *Tetractinostigma microcalyx* Hassk., in Flora 40 : 533 (1857). Type : Java ; Bantam, near Sea Shore Mountain, 1841, *Hasskarl* s. n. *Aporusa villosula* Kurz, For. Fl. 2 : 362 (1877) ; Hook. f., *l. c.* : 347 ; Parkin., For. Fl. And. : 237 (1923). Syntype : S. Andamans, N. Corbyn's Cove, *Kurz* s. n. (CAL !).

A. roxburghii Baill. ex Kurz, For. Fl. Brit. Burma 2 : 362 (1877) ; Hook. f., *l. c.* : 347. Syntypes localities : In the tropical forests of Chittagong and Pegu down to Tenasserim.

Alnus integrifolia Roxb. ex Steudl., Nom. Bot. ed. 2, 1 : 56 (1840), *nom. nud. Lepidostachys roxburghii Wall. num. list no.* 6816 (1832), *nom. nud. Aporusa roxburghii* Baill., Et. Gen. Euphorb. : 645 (1858), *nom. nud.*

Representative specimens examined in CAL : Orissa : Bhanjabasa, 790 m, 13 Feb. 1958, *Panigrahi* 12277 ; West Bengal : Jalpaiguri District, Buxa, 180 m, 12 May 1949, *Narayanswami et al.* 2899 ; Sikkim : Tista Valley, 20 May 1903, *Prain* s. n. ; Assam : Chirang R. forest, 22 Apr. 1957, *R. S. Rao* 7105 ; Nagaland : Naga Hills, May 1899, *Prain's Collector* 981 ; Meghalaya : Khasi Hills district, Nongpoh, 550 m, 31 May 1914, *U. N. Kanjilal* 3988 ; Tripura : Damcherra, 30 m, 19 Jan. 1962, *Deb.* 26809 ; Andaman Islands : Port Blair, *King's Collector* 179 ; South Andaman Islands, Ferrargunj, Inland forests, 50 m, 19 May 1974, *Thothathri et al.* 1252.

Uses : Dark brown wood is said to be very hard and close grained.

Distribution : INDIA (Uttar Pradesh, Orissa, West Bengal, Sikkim, Assam, Arunachal Pradesh, Nagaland, Meghalaya, Tripura, Andaman & Nicobar Islands), BANGLADESH, BURMA, S. E. ASIA, MALAYSIA, and CHINA.

8. **A. microstachya** (Tul.) Muell.-Arg., *l. c.* : 474 ; Hook. f., *l. c.* 349 ; Airy Shaw in Kew Bull. 23 (1) : 2 (1969) ; Chakraborty in Bull. Bot. Surv. India 21 (1-4) : 13 (1979). *Scepa microstachya* Tul. in Ann. Sc. Nat. Ser. 3, 15 : 255 (1851). Type : Burma, Tavoy, *Wall. num. list no.* 591.

A. maingayi Hook. f., *l. c.* : 348. Syntypes : Malacca, *Maingay* 1899 & 1899A (Kew distribution no. 1418) ; Singapore, *Cantley* 92.

Specimens examined in CAL : Andaman & Nicobar Islands : S. Andamans, *Kurz* s. n., North Nicobar, Katchal Islands, Nirman Nagar, 14 Dec. 1974, *Chakraborty* 2186.

Distribution : INDIA (Andaman & Nicobar Islands), BURMA, MALAYA PENINSULA, MALESIAN ISLANDS and THAILAND.

9. **A. oblonga** Muell.-Arg. in Linnaea 32 : 78 (1863) ; Hook. f., *l. c.* : 348 ; Das in Kanjilal *et al.* Fl. Assam 4 : 163 (1940). Type : Burma : Amherst, 1827, *Wall. num. list. no.* 7299 (K-W ; microfiche—CAL !).

Specimens examined in CAL : Assam : 1880, *Fischer* s. n. ; Mizoram : Lushai Hills, near Fort Lungleh, 915-1220 m, 14 Apr. 1899, *Gage* 194 ; Meghalaya : Garo Hills, 244-305 m, Dec. 1885, *Mann* s. n. ; Tripura : Vanghmun-Tlangsang, 25 Jan., 1962, *Deb* 27119.

Distribution : INDIA (Assam, Meghalaya, Mizoram and Tripura) and BURMA.

10. **A. wallichii** Hook. f., *l. c.* : 350 ; Prain, Beng. Pl. 2 : 939 (1903) ; Das in Kanjilal *et al., l. c.* : 162 ; Airy Shaw *l. c.* 23 (1) : 2 (1969), *in obs.* Lectotype : Bangladesh : Sylhet, Pundua, *Wall. num. list no.* 8019 (K-W ; microfiche—CAL, selected here ; isolectotype—CAL !).

A. aurea Hook. f., *l. c.* : 351, p.p. [excl. syntype spec. ex Malacca and Perak, incl. *A. microstachya sensu* Kurz (1877) *pro syn*] ; Prain *l. c.* : 939 ; Das in Kanjilal *et al., l. c.* : 164 ; Manjunath *et al.* (ed.), Wealth of India 1 : 88 (1948). *A. microstachya sensu* Kurz, For. Fl. Brit. Burma 2 : 363 (1877), *non* (Tul.) Muell.-Arg. (1866).

Specimens examined in CAL : Meghalaya, Garo Hills, Rongrengiri, 8 Feb. 1886, *Clarke* 43034F. Burma : Pegu ? Toukyeahit, *Kurz* 1616 (2 sheets).

Uses : A decoction of the leaves is used as a yellow dye.

Distribution : INDIA (Meghalaya), BANGLADESH and BURMA.

J. D. Hooker (1887) described *Aporusa wallichii* Hook. f. based on *Wallich* 8019 from Mont Pundua (Sylhet) (K-W, CAL), on *Hook. f. & Thomson* s. n. from Seeta Koond in Chittagong and on *Lobb* s. n. from Moulmein. Simultaneously, he described *A. aurea* Hook. f., based on "*A. microstachya* Kurz, For. Fl. 2 : 363 (not of Mueller)" and cited specimens from Chittagong and Ava to Moulmein, ascending to 4000 ft., *Kurz* and Perak, Herb. Hort. Calcutt. & Malacca, *Griffith* s. n. (Kew distribution no. 4959), as syntypes. While doing so, he observed : "The fine golden hue of the dried leaves is characteristic of this species, which approaches *A. wallichii* and is well likened by Kurz to the colour of *Symplocos*. I have seen no fem. flowers, the characters of which are taken from Kurz's description of his *A. microstachya*, which is certainly this and not that plant of Mueller, nor have I seen any Tenasserim, Avan or Chittagong specimens and hence my identification of the Perak and Malaccan plant with that of Kurz may be erroneous". Airy Shaw (1969, in obs.), after citation of literature on *Aporusa microstachya* (Tul.) Muell.-Arg. observed "[*non* Kurz, For. Fl. Brit. Burma 2 : 363. 1877 ; cf. Hook. f., *l. c.* : 349, 351, in obs. : = *A. aurea* Hook. f. teste Hook. f., sed potius *A. wallichii* Hook. f.]". And. in 1981, he provided distributional range of *A. aurea* Hook. f. as "Lower Siam, Malaya, Borneo".

We have critically examined the syntypes of *A. aurea* Hook. f. from Perak and Malacca in CAL annotated by J. D. Hooker and agree with Airy Shaw (1969, 1981) that *A. aurea* Hook. f. does not occur in Bangladesh and Burma and that the specimens from Chittagong, Ava and Moulmein, included by him without personal study, under *A. aurea* Hook. f., do indeed belong to *A. wallichii* Hook. f.

Since Kurz (1877) attributed the authority of *A. microstachya* to Muell.-Arg., *A. aurea* Hook. f. based on *A. microstachya sensu* Kurz, *non* Muell.-Arg. must be treated as *Sp. nov.*, not as a *nom. nov.* We, therefore, select *Griffith* s. n. (Kew distribution no. 4959, CAL—Acc. no. 406170) from Malacca, annotated by J. D. Hooker himself as the lectotype of *A. aurea* Hook. f.

11. **A. villosa** (Lindl.) Baill. Et. Gen. Euphorb. : 645 (1858) ; Hook. f., *l. c.* : 345 ; Manjunath *et al.* (ed.), Wealth of India 1 : 88 (1948) ; Airy Shaw *l. c.* 26 : 218 (1972). *Scepa villosa* Lindl. Nat. Syst. Bot. Ed. 2 : 441 (1836). Type : Burma : Moulmein, *Wall. num. list no.* 7298.

A. glabrifolia Kurz in Journ. Bot. 4 : 330 (1875) ; Hook. f., *l. c.* : 349. Type : Nicobar Islands, Kamorta, tropical forest, Feb. 1875, *Kurz* s. n. (CAL !—3 sheets).

Specimen examined in CAL : Manipur : Laimatak, 1220 m, Feb. 1906, *Meebold* 10876.

Uses : Tree is said to yield a red resin ; wood reddish, hard, even-grained.

Distribution : INDIA (Manipur and Andaman & Nicobar Islands), BURMA, VIETNAM, THAILAND and S. CHINA.

12. **A. yunnanensis** (Pax & Hoffm.) Metz. in Lingnan Sci. Journ. 10 : 486 (1931) ; Merr. in Journ. Arn. Arb. 19 : 40 (1938) ; Airy Shaw *l. c.* 218.

A. wallichii Hook. f. var. *yunnanensis* Pax & Hoffm. in Engl. Pflanz. IV. 147. XV : 90 (1922). Syntypes : Yunnan, *Henry* 11638E & 12828.

Specimen examined in CAL : Nil.

Distribution : INDIA (Assam), BURMA, THAILAND, S. CHINA and VIETNAM.

The enumeration of the 12 species listed above would show the paucity of specimens in respect of these taxa in the Herb. CAL ; as many as eight of them are represented either by the 'type' or by one or two specimens other than the type and *A. yunnanensis*, by no specimen at all. A thorough search should be made both in the field and herbaria other than CAL to locate these taxa to determine their status as endangered/scarce elements in the Indian Flora.

Further, it may be seen that of the 6 endemic species, only *A. bourdillonii* Stapf is endemic to India proper, the others, to both India and/or Sri Lanka.

Of the 6 species with wider distribution only two extend their range to Malaysia and of which *A. dioica* (Roxb.) Muell.-Arg. is the most widespread species extending to Uttar Pradesh as its Western limit. The remaining four species occurring in Assam-Meghalaya-Manipur sector extend as far as China in the north, Vietnam in the east and Andaman and Nicobar Islands in the south.

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